Wisconsin
Department of Commerce

Evaluation # 200230-K (Replaces 960048-K)

Safety & Buildings Division
201 West Washington Avenue
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Wisconsin
Building Products Evaluation

Material	Quikwall Surface Bonding Cement Quikwall Fiberglass Reinforced Stucco System Quikrete Base & Finish Coat Stucco
Manufacturer	Quikrete of Wisconsin W225 N 6236 Village Drive Sussex, WI 53089

SCOPE OF EVALUATION

GENERAL: This report evaluates Quikwall Surface Bonding Cement for use on interior and exterior load bearing and non-load bearing masonry walls. This report evaluates Quikwall Fiberglass Reinforced Stucco System for use in limited-load bearing walls with one-hour fire resistance ratings. This report evaluates Quikrete Base & Finish Coat Stucco for use as noncombustible wall cladding.

This review includes the cited **Comm** code requirements below in accordance with the current **Wisconsin Building and Heating, Ventilating and Air conditioning Code:**

- **Structural:** Quikwall Surface Bonding Cement designed in accordance with **Chapter Comm 53**.
- **Fire Resistance:** Quikwall Fiberglass Reinforced Stucco System was evaluated for use in limited-load bearing walls with one-hour fire resistance ratings in accordance with **s. Comm 51.04**.
- **Noncombustible Wall Cladding:** Quikrete Base & Finish Coat Stucco was evaluated as a noncombustible wall cladding material meeting the definition under **s. Comm 51.01(86)(a)**.

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This review includes the cited **International Building Code (IBC)** requirements below in accordance with the **Wisconsin Amended IBC Code (effective 7/01/02):**

- **Structural:** Quikwall Surface Bonding Cement meets the definition of **s. IBC 2102.1**, for dry-stacked, surface-bonded wall. Quikwall Surface Bonding Cement was evaluated in accordance with **s. IBC 2109.2.3**.
- **Fire Resistance:** Quikwall Fiberglass Reinforced Stucco System was evaluated for use in limited-load bearing walls with one-hour fire resistance ratings in accordance with **ss. IBC 703.1**, and **703.2[Comm 62.0703]**.

  - Quikwall Fiberglass Reinforced Stucco System was evaluated for use as an exterior approved weather covering in accordance with **ss. IBC 1405.1**, **1405.2**, **1405.3**, and **1405.14**.
- **Noncombustible Wall Cladding:** Quikrete Base & Finish Coat Stucco was evaluated as a noncombustible wall cladding material in accordance with **ss. IBC 703.4** and **703.4.1**.
  - Quikrete Base & Finish Coat Stucco meets the definition of **s. IBC 2502.1**, and installed in accordance with **ss. IBC 2507** and **2510**.

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DESCRIPTION AND USE OF MATERIAL

Surface Bonding Cement: Quikwall Surface Bonding Cement is a packaged material consisting of a pre-portioned mixture of Portland cement, ground limestone, alkali resistant glass fibers, additives, fine sand, and water. The mixture is sprayed or hand troweled onto both faces of dry stacked hollow concrete masonry units rather than mortaring the head and bed joints. The minimum thickness on both faces of the running bond pattern masonry is 1/8-inch. Quikwall Surface Bonding Cement that is sprayed in place must be troweled to insure structural integrity. The finished surface may be textured provided the minimum thickness is maintained and the prepared mix is not altered.

Fiberglass Reinforced Stucco System: The Quikrete Fiberglass Reinforced Stucco system is installed on exterior walls of wood or steel stud construction. The fiberglass reinforced stucco cement plaster can be used alone or with an additional layer of stucco to achieve the desired thickness, texture and color. Quikrete Fiberglass Reinforced Stucco is attached to insulation board or sheathing using 1-inch by 20 gauge galvanized wire mesh. The coating thickness is a minimum 3/8-inch. Quikrete Fiberglass Reinforced Stucco comes sanded or concentrated in pre-measured paper bags. The sanded variety requires the addition of water only. The concentrate requires the addition of water and sand in amounts recommended by the manufacturer.

- **1-Hour Rated Wall Assembly**, see TESTS AND RESULTS section of this evaluation.

Base and Finish Coat Stucco: The Base Coat Stucco is used as an alternative to job-site blended scratch and brown coat plasters typically used in traditional three coat stucco applications. The Base and Finish Coat Stucco is used as an alternative to job-site blended finish coat plasters. Base and Finish Coat Stuccos are pre-blended components of Portland cement, lime and sand.

TESTS AND RESULTS

The tests and results listed below cover both the current WI Building Code **Comm** and future **IBC** requirements.

Quikwall Surface Bonding Cement: Flexural and racking strength tests were conducted on masonry walls using Quikwall Surface Bonding Cement in accordance with **ASTM E-72**. Compressive strength of surface bonded 3-block prisms was found to be 698 psi based on gross area and 1289 psi based on net area when tested in accordance with **ASTM E-477**. The overall design parameters recommended by the National Concrete Masonry Association were found to be applicable to Quikwall Surface Bonding Cement. Results are on file with the department.

Fiberglass Reinforced Stucco System: Transverse load testing was conducted on the Fiberglass Reinforced Stucco. Results are on file with the department. **ASTM E-119** testing was conducted on both sides of a wall system using the Fiberglass Reinforced Stucco, resulting in a combustible 1-hour rating.

Base and Finish Coat Stucco: Combustibility testing was conducted on the Base and Finish Coat Stucco in accordance with **ASTM E-136**.

1-Hour Rated Wall Assembly: The 1-hour rated wall assembly consists of nominal 2 x 4 wood studs spaced 16 inches on center. 3-5/8-inch thick mineral wool batts in the cavity, and one layer of Kraft waterproof building paper, 1-inch thick EPS insulating board, 1-inch x 20-gauge stucco lath and 3/8-inch thick Quikwall Fiberglass Reinforced

Stucco on the exterior surface. One layer of 5/8-inch thick Type X gypsum wallboard is attached to the interior face of the assembly.

LIMITATIONS OF APPROVAL

Building Code Applicable to Projects Submitted for Review Prior to July 1, 2002: The **Comm** limitations below are in accordance with the current **Wisconsin Building and Heating, Ventilating and Air Conditioning Code:**

Structural:
Surface Bonding Cement:

- Structural calculations shall be submitted to the department for each project in accordance with **s. Comm 50.12**.
- Walls are limited to supporting no more than roof loads with a maximum unsupported wall height of 8 feet.
- With gable roof construction, the wall may extend above 8 feet if it is laterally stayed at the top and at maximum 8-foot intervals.
- Shear stress shall not exceed 10 psi based on gross area.
- The tensile stress in flexure shall not exceed 18 psi for the vertical span and 30 psi for the horizontal span based on gross area.
- Compressive stress shall not exceed 45 psi for structural hollow units and 85 psi for ground hollow units.
- The ratio of water to the sacked dry mix material shall not exceed 1:4 by weight.
- No materials may be added to the mix in the field except water.
- Quikwall Surface Bonding Cement shall not be used in the construction of a masonry fireplace or chimney.

Structural:
Fiberglass Reinforced Stucco System and Base and Finish Coat Stuccos:

- The stucco and any supports or attachments must be capable of withstanding a horizontal force equal to the wind loads specified in **s. Comm 53.12**.

Fire Resistance:

- The Fiberglass Reinforced Stucco and Base and Finish Coat Stuccos are approved as noncombustible cladding materials.
- For use over foam plastic, the Fiberglass Reinforced Stucco and Base and Finish Coat Stuccos may be used as noncombustible cladding in NC-0 rated construction in accordance with **s. Comm 51.06(4)(c)**.

The manufacturer's installation recommendations shall be followed.

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The **IBC** limitations below are in accordance with the **Wisconsin Amended IBC 2000 Code (effective 7/01/02):**

Structural:
Surface Bonding Cement:

- Surface-bonding cement (mortar), shall comply with the requirements of **s. IBC 2103.8**.
- Structural calculations shall be submitted to the department for each project in accordance with **s. IBC 2109.2.3**.
- Surface-bonded walls are limited to lateral support as required by **s. IBC 2109.4**.
- Shear stress shall not exceed 10 psi based on gross area as required by **s. IBC 2109.2.3.1**.
- The tensile stress in flexure shall not exceed 18 psi for the vertical span and 30 psi for the horizontal span based on gross area as required by **s. IBC 2109.2.3.1**.
- Compressive stress shall not exceed 45 psi for structural hollow units and 85 psi for ground hollow units as required by **s. IBC 2109.3**.
- The ratio of water to the sacked dry mix material shall not exceed 1:4 by weight.
- No materials may be added to the mix in the field except water.
- Quikwall Surface Bonding Cement shall not be used in the construction of a masonry fireplace or chimney, see **s. IBC 2111**.

Structural:

Fiberglass Reinforced Stucco System and Base and Finish Coat Stuccos:

- The stucco and any supports or attachments must be capable of withstanding a horizontal force equal to the wind loads specified in **ss. IBC 2502 (definition**), **2501**, **2510**, **2511**, and **2512**.

Fire Resistance:

- The Fiberglass Reinforced Stucco and Base and Finish Coat Stuccos are for installation in accordance with **ss. IBC 602.1** through **602.4** and **602.5**, **703.4**, and **1403.5**.
- For use over foam plastic, the Fiberglass Reinforced Stucco and Base and Finish Coat Stuccos may be used for installation in accordance with **ss. IBC 602.1** through **602.4** and **602.5**, **703.4**, and **1403.5**.

The manufacturer's installation recommendations shall be followed.

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This approval will be valid through December 31, 2007, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:
Approval Date: June 28, 2002 By: _____

Lee E. Finley, Jr.
Product & Material Review
Integrated Services Bureau

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